

An
ESSAY
on
COINING
By
SAMUEL THOMPSON
Die-Sinker

1783

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Table of Gold Weight

24 Blancks 1 Peroit, 20 peroits 1 Droit, 24 droits
1 Mite, 20 mites 1 Grain, 24 Grains 1 Penny-weight,
20 penny weight 1 Ounce, 12 Ounces 1 Pound, Troy

Note: 24 Carats is 1 Ounce Troy, a Carat is divided
into 24 Grains, 1 Carat Grain is $\frac{1}{24}$ Troy Grains.

The Master of the Mint has an Office, wherein
his Clerk or Deputy Buys and Exchanges the Gold
and Delivers it to the * Assay-master to try if there
is any Allay in it, and how much, which he does in
this manner, There is a paste made of bone ash about
the size of a halfpenny and a quarter of an Inch thick

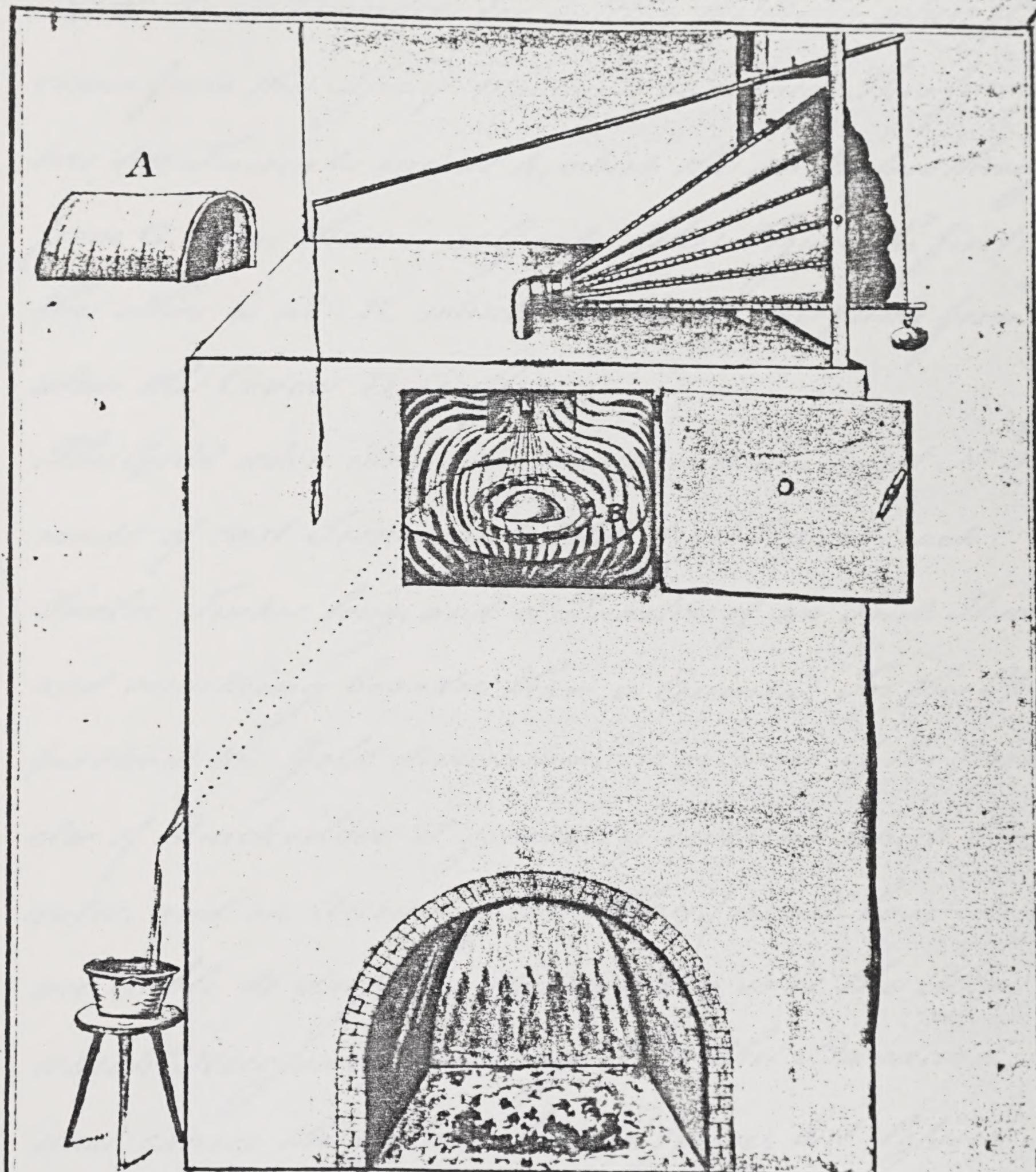
* The Assay-master is sworn into Office to this Effect, That he will to
the utmost of his Skill and Abilities make just Assays, and make true
and faithfull Report of the same.

A-dished, or hollowed, and is called a Tawse, on this he lay
a Carat-weight of Gold, that is scraped off of a Shave,
and puts it into the Muffle A. made of wrought Iron; which
is put into the Furnace, shuts the Door till it is melted
which he perceives through a hole in the door for that pur-
pose, when melted he sees it collect together in a little round
Mall, Sparkling with a prodigious Lustre, then he takes
it out and leaves it to cool. If the gold he receives is in
pieces, he melts them in one, each melting must be by way
separated, when cold he weighs it, if he finde it haue not di-
minished in the weight, It is then what is called High
fine Gold, If it Diminishes one Twelveth, it will
not be at the standard, the same as the coin made in the Tower
of London, which Standard all wrought gold is touchid
at, that is, Twenty two Carats of high fine Gold, and
two Carats of Alay, or Copper, If he finde it diminished
more than one Twelveth, it is then called Coarse Gold
and of Value only, according to the Quantitie of High
fine

5

the Gold it containe, when the standard is Four pounds to the
ounce, (which is the general price of Gold in Ireland,) high
fine Gold, is worth four pounds seven shillings and thred
pence farthing, In this Operation the Gold becomes fine, on
account, that the Paste suckes in the partie of Allay or
Litharge, and what the Paste does not suck in, it spreads
in a Circle round the Gold, but this never happens in
paying only in Refining, when the Gold is above the
standard or fine, there is more Allay put to it, This
Allay makes the Gold harder and more fit for use,
High fine Gold is very little harder than Paste, When
the Gold is below the standard it is refined thin, There
is a large Paste made, large according to the Quantity
of Gold that is to be refined, in shape like B, the Gold
is laid on the Paste and put into the Furnace, when it
is melted the Gold of it selfe collectes together in a heap
in the middle of the Paste, the Allay or Litharge covers
it, which is blowne off, with the Bellows at the top of this

6. Bellows is not used in Assaying only in the fining large
Quantities) whose pipe come directly over the middle
of the Paste, and causes the Alay or Litharge to become
in a Circle round the Gold as at B, and is collected toge-
ther with a scraper and brought to the lip of the Paste
(the dotted line is a tube of Iron in the wall wherein
the lip of the Paste rests and conveys the Litharge to
a Vessel fixed underneath for that purpose, When brought
to the proper Standard it is given by the Assay Master
to the Moneyer to be coined.



N^o. 2. Is a Furnace for melting the Gold, when it comes from the Assay-master to be coined. This furnace has two funnels one at A, which the air passes through from C, where there is a grate like Figure the first, the other is at B, which carries off the fume from when the Cover D is off.

The Gold when melted is poured into the Ingot N^o. 3 made of cast Iron which holds five Bars each Twelve Inches long, and a Quarter of an Inch Thick and something broader than a Guinea; In this Operation the Gold diminishes, on account of the particle of Quicksilver it generally contains which evaporates, and on Account of the Alloy, (as all base Metals are liable to drop in the melting so is the Alloy) which is necessary to bring it to the Standard, this wast causes the Gold to become finer, but lessens it in the weight, If there is seven Hundred Cunces melted, which is what will be necessary to coin

10 Two Thousand Guineas allowing for the cuttings, there
will be a wast on this, one Quine and a half.

This Operation will take one man half a Day.

This calculation I have made of Two Thousand
Guineas as I conceive that the Quantity of Gold
Necessary for that number will be as much as
can be got weekly in Dublin.

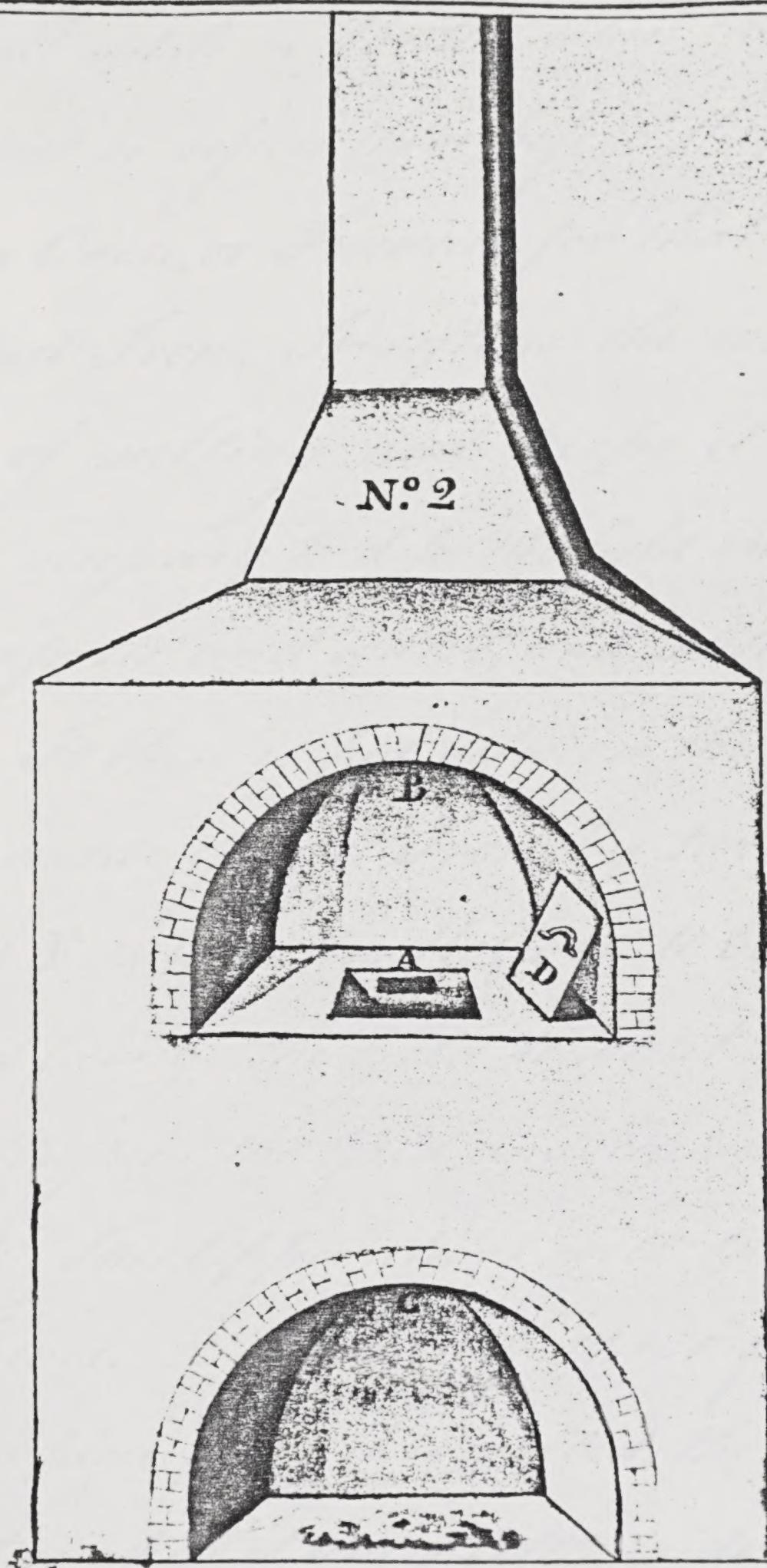
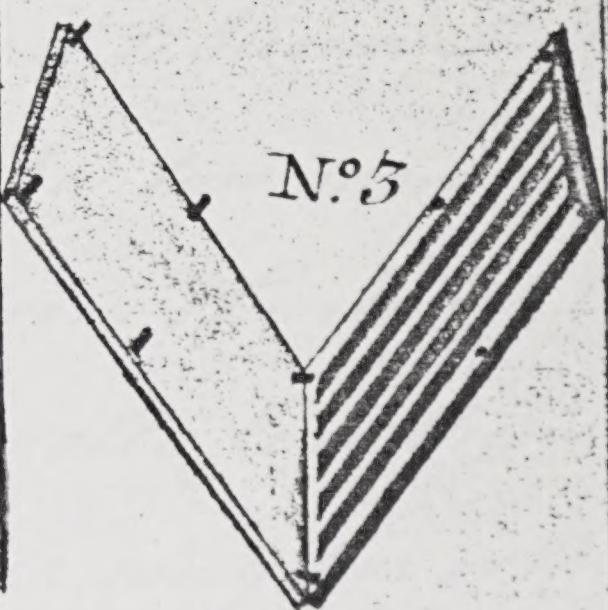
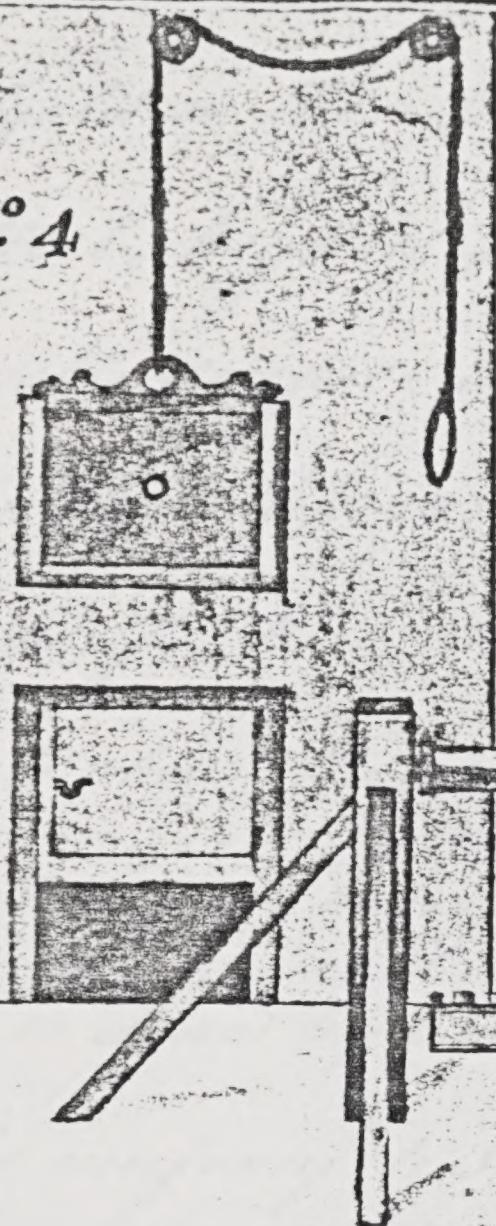


Fig. 1st

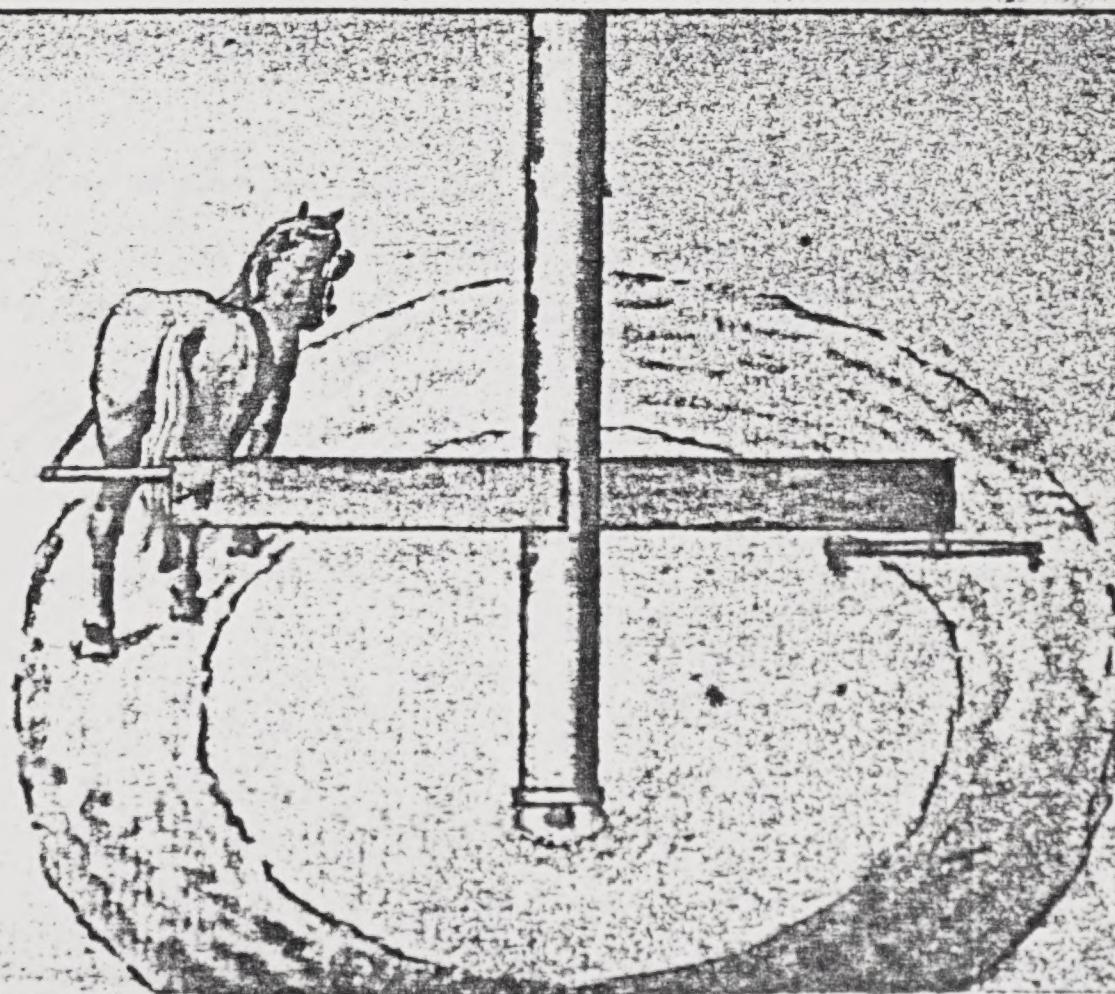
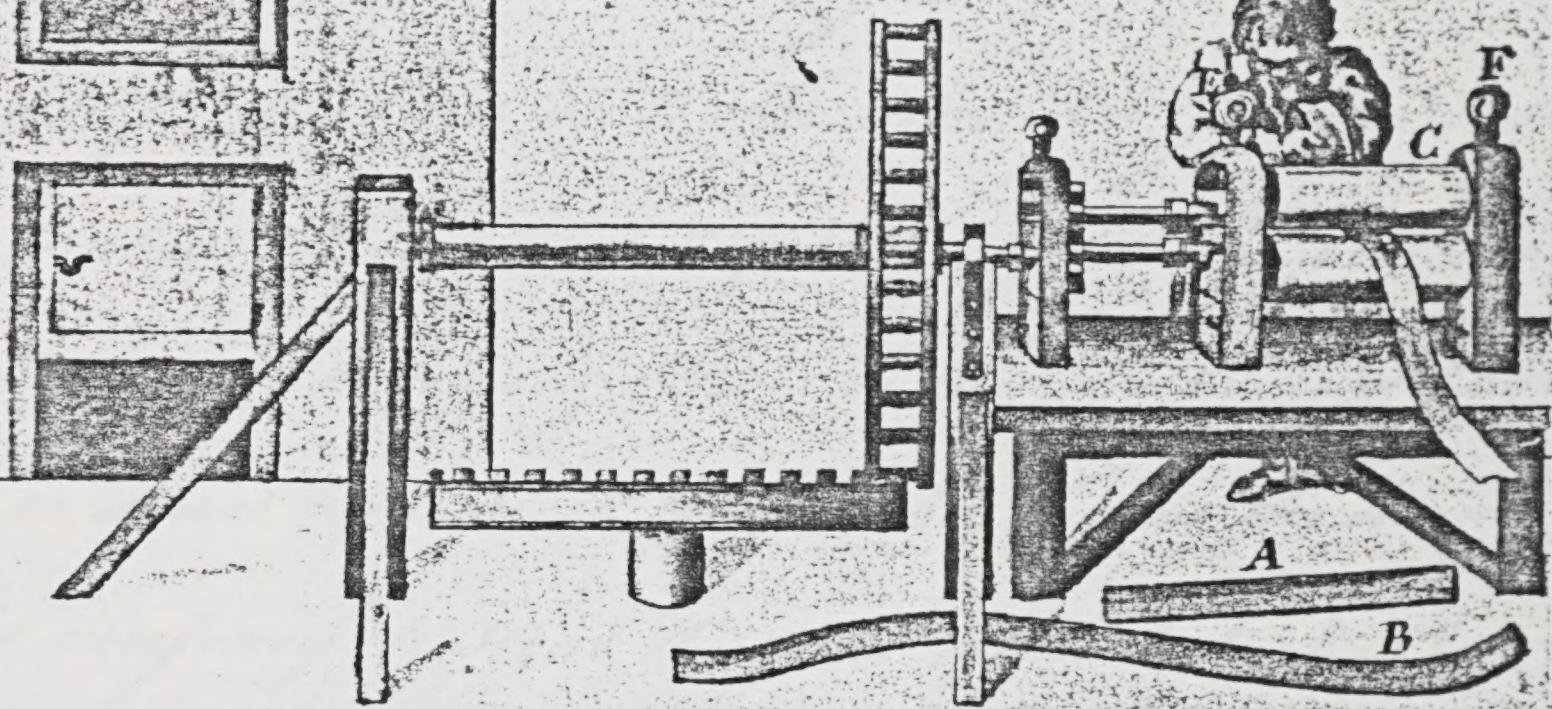


14. As all metals is Brittle when cast, it is necessary
to heat or soften them before they are worked N: 4
is an Oven, or Furnace, for that use, That is made
of Cast-Iron, It softens the metal without dan-
ger of melting and keeps it clean, when heated
it is necessary to dip the Gold in a Pickle made of
aqua-fortis and water, and must be wiped very cle-
an, It then is put between the Rollers C which
are made of cast Iron, by turning the screws E
and F causes the Rollers to become wide, or Close,
and brings the Gold to what thickness you please
it toughens the Gold and causes it to become Malle-
able, This Operation will take two men four
Hours. A is a piece of Metal from the Ingot, B
is a piece after it is rolled, the rolls lengthen it
but makes it very little wider: every two or three
times that it goes through the Rollers, it is necessary
to heat it, or it will crack, and as often put in the
Pickle.

N^o 4



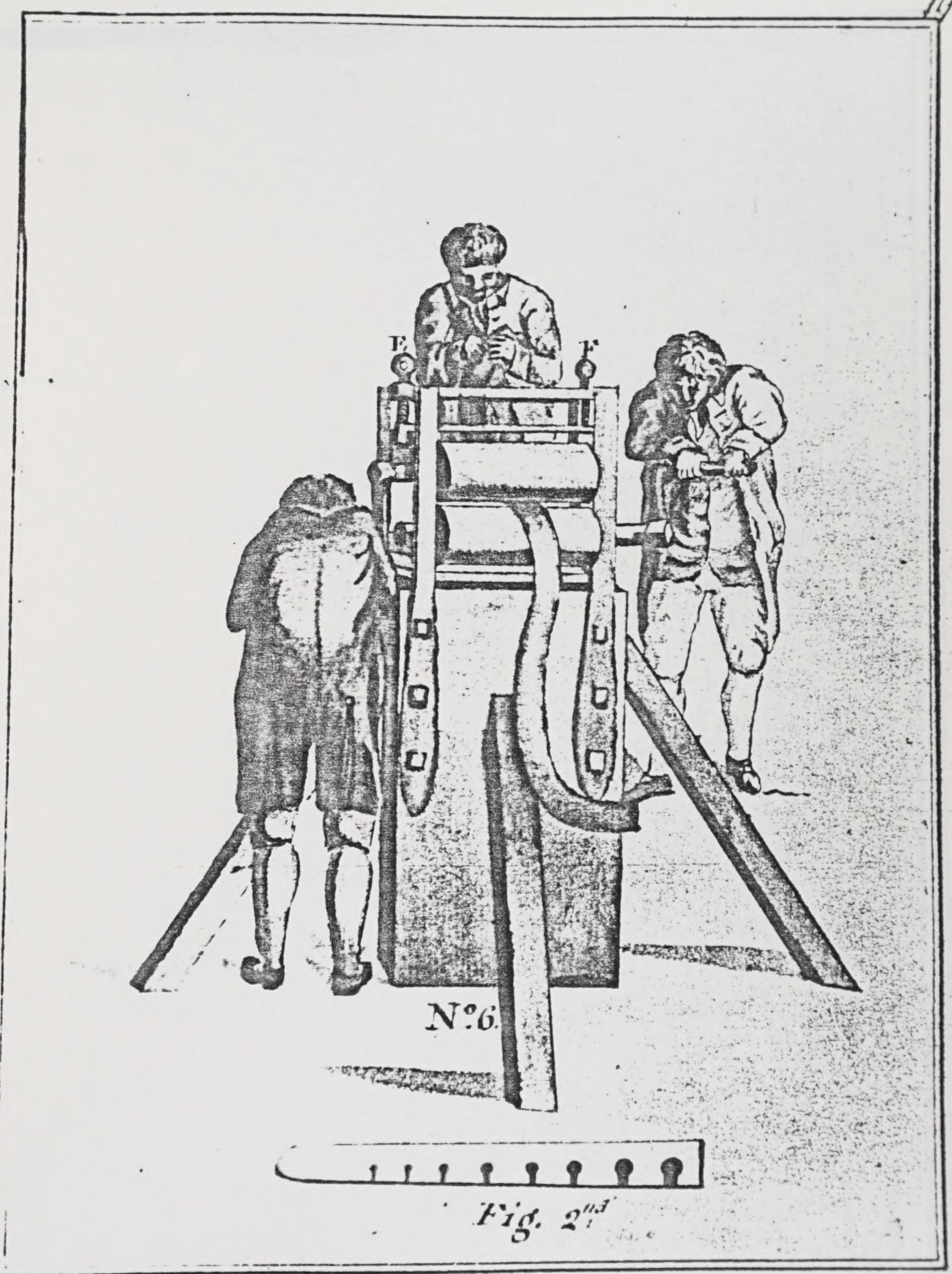
N^o 5



15
A water wheel is much better when it is convenient for to get water
from it works with greater force & much better on this side with the
water falling on the side of the wheel.

18 When it is brought down thin by the cast Metal,
the Gold is then put through these Rollers made
of steel, highly polished, they give the Gold a
smooth surface and a fine Edge, great care is taken
in this Operation to bring the Gold to a particular
Thickness, that a Circle the size of a Guinea shall
weigh about Five Penny weight, ^{or} Ten or Eleven ^{Grains}, to allow
for filing, in bringing them to the Exact weight, and
this is done by a steel Gage like Figure the second.
It is necessary to heat the gold often to keep it from
Cracking and keep it particularly Clean.

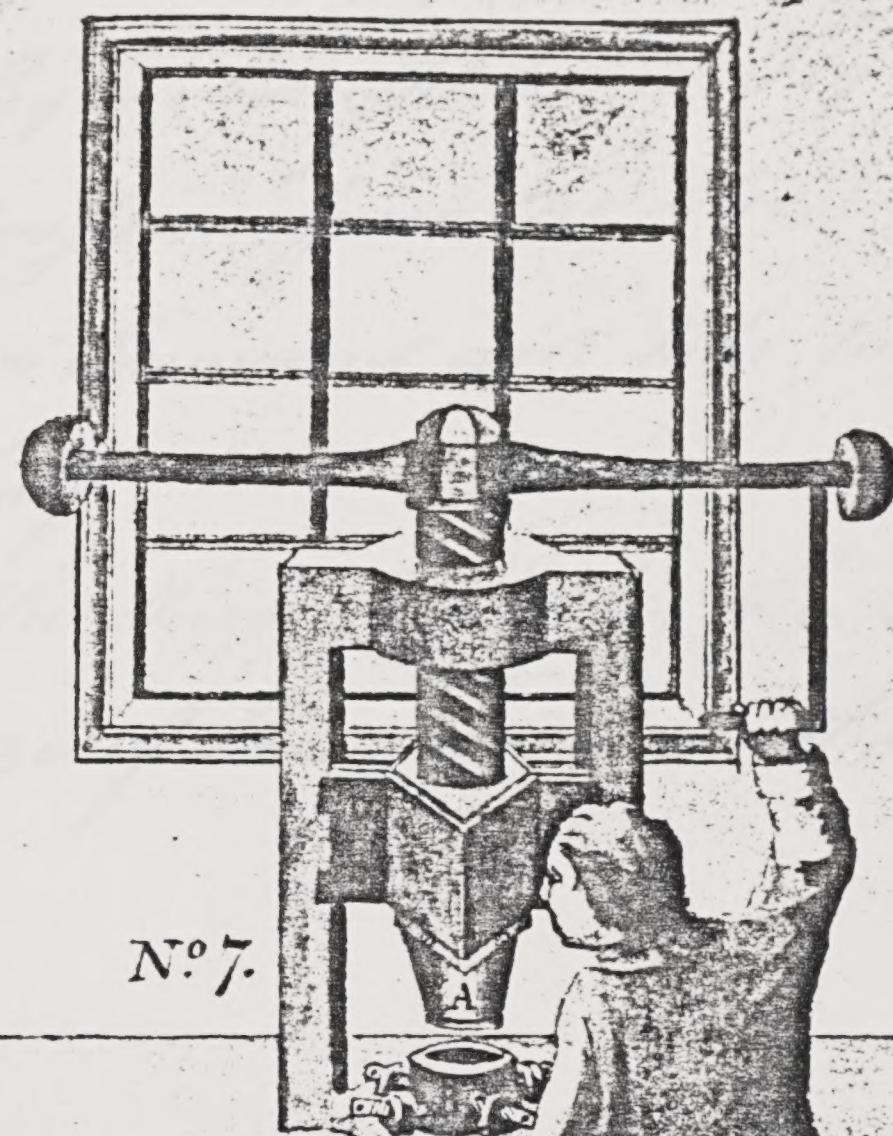
This Operation will take Three or four Hours,
The Screws E, E, by turning them Open and close
the Rollers at pleasure.



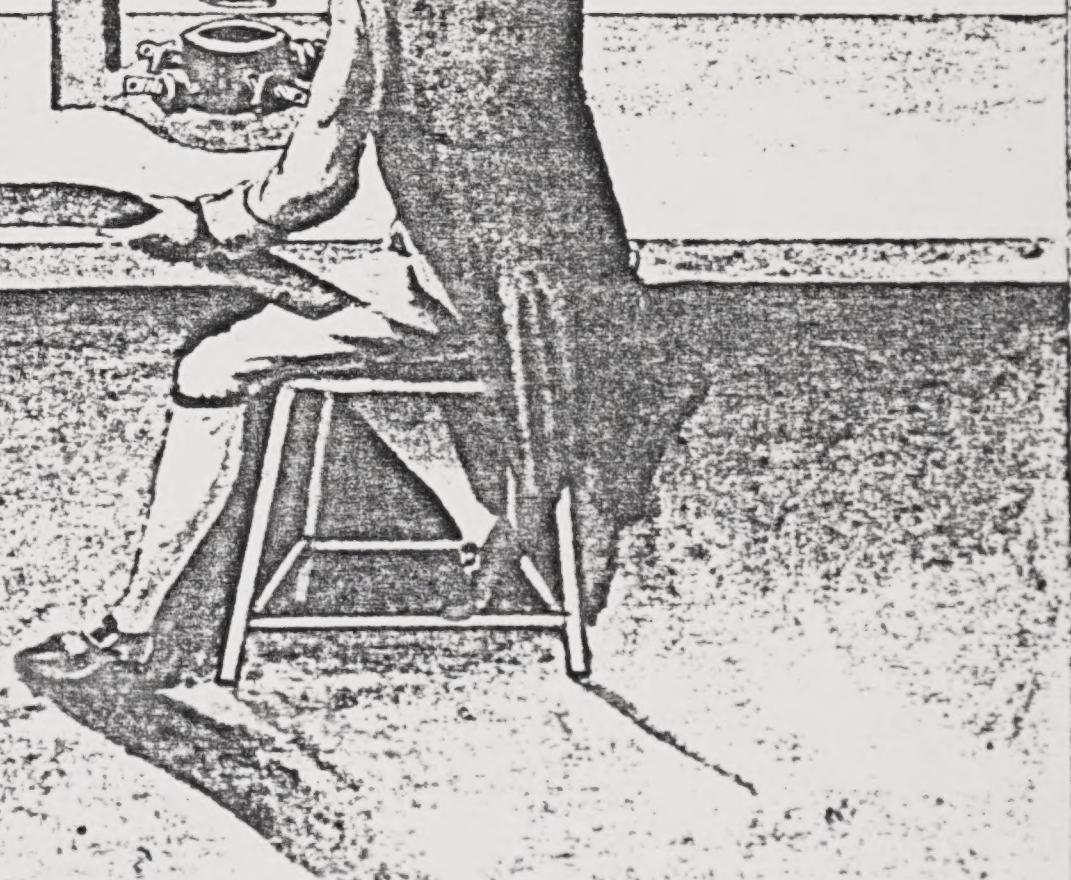


From the Mollers it is brought to this Press, to be
cut to the size, out of the lengths, which is done by
putting the Strip between the punch A, and the Mid
B, then by turning the Handle the long screw forces
down the punch A, into the Mid B, and carries
with it whatever is between,

This Operation will take 100 men, two days,
with two presses, to cut two Thousand.



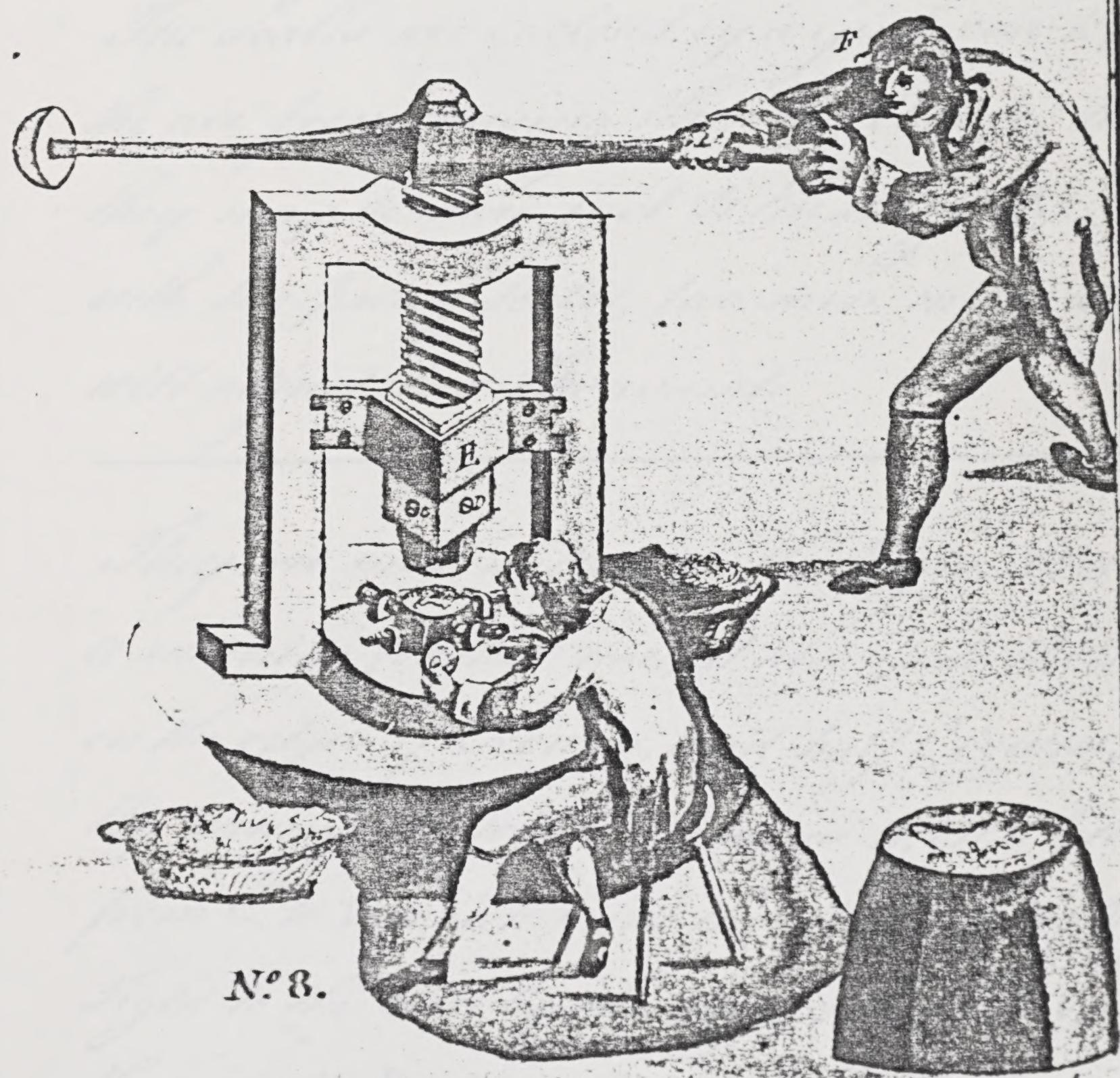
Nº 7.



26 After they are cutt, they ^{are} cleaned and made exceeding
clean, they are brought to this Fly or Press to receive
the Impression, from the Dies.

To do two Thousand will take two men one day
and a half.

Figure the third is a Die, the Exact shape
and size of those used in the Tower.



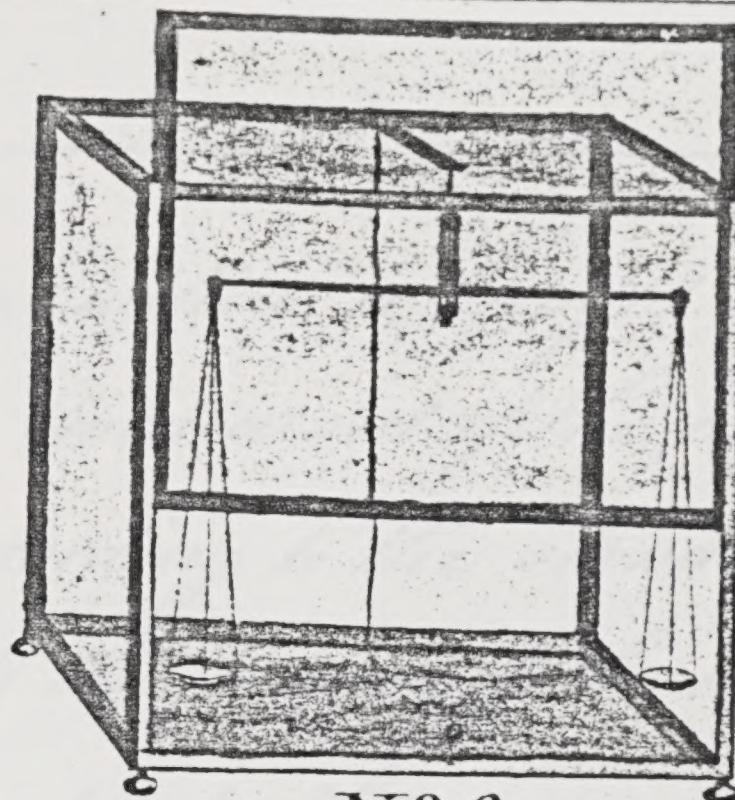
Nº 8.

Fig. 3rd

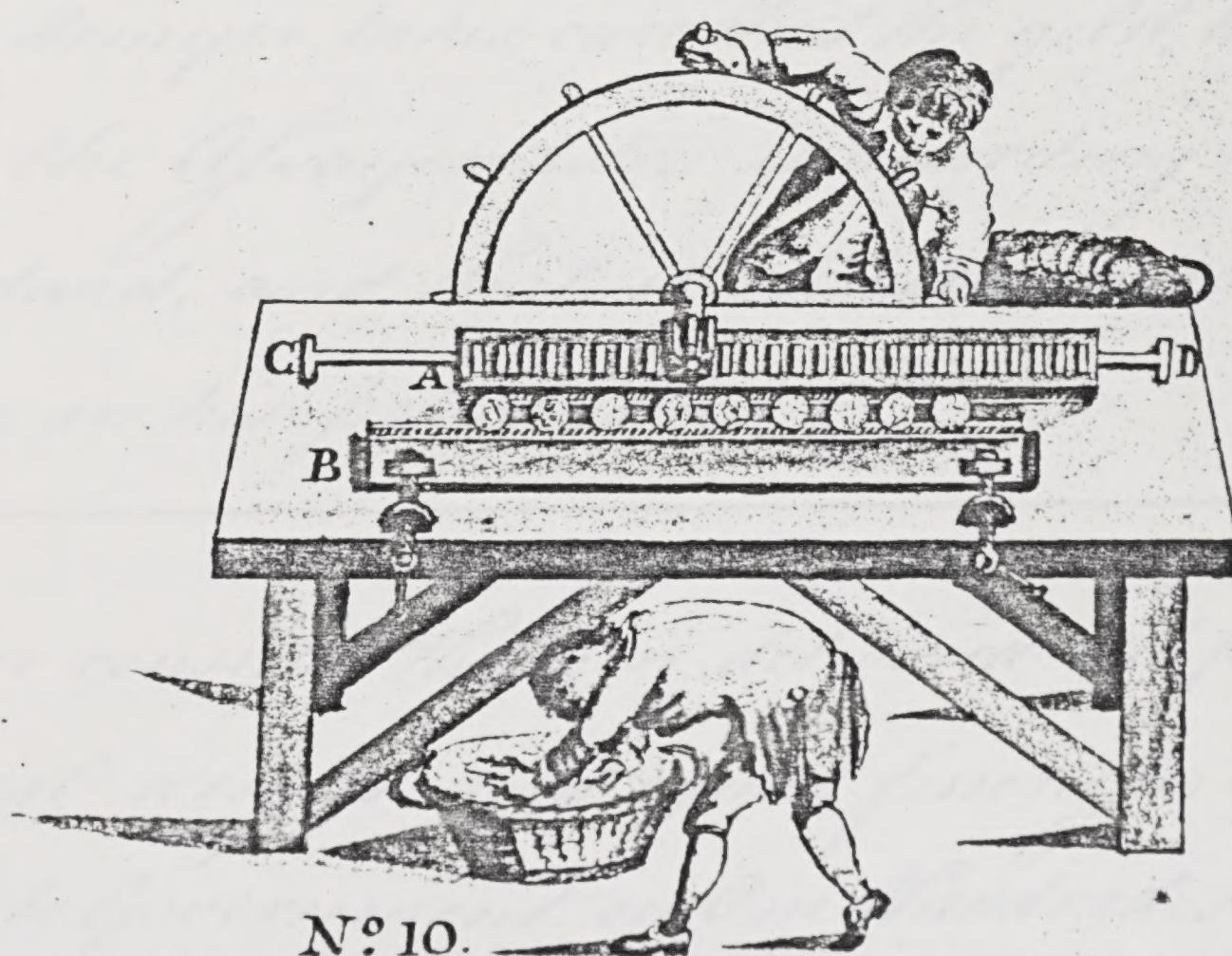
When the Impression is struck on them, they are adjusted to the weight, if too heavy, by filing them round the edges, in this there is a want on the scales in the mulling them, of about Four Penny weight.

The scales are enclosed by a glass case to prevent the air from causing them to vibrate, that they may be more just to the weight. with two pair of Scales, two men, in two days will adjust two Thousand.

They are next milled, on the Edges, N^o 10. is a machine for that use, it also puts the letter on the edges of Crowns, and half Crowns. By turning the wheel it moves A, on a groove from C, to D, which turns the coin; B, being projected tight to the coin by the screws E, and F, causes the coin to receive the Impression from the edges.



Nº 9.



Nº 10.

edges of A, and B, this Operation will take ³³ two hours
one day.

The coin when melted is brought to the Assay master, who takes a Guinea out of the parcel, and Assays it, if according to the standard, gives a note of them to the master of the mint as fit for use, but if he finds them worse than the standard, they are melted down again, and the loss falls upon the moneyer or coiner.

The Moneyer takes care that the gold, he receives from the Assay-master is according to the standard, and that it receives no adulteration while in his possession.

If we consider the coin delivered out for gold of equal weight and equal fineness, The loss then to Government on One Hundred Thousand

34 Thousand Guineas will be about Two Thousand
Pounds yearly, as appears by page 37
But if there is two per cent charged for coin-
ing it will stand thus.

One Hundred Thousand Guineas is £ 113,750

Two per cent on that sum is £ 2275

which will clear the Expense of ^{the} Coining of Gold

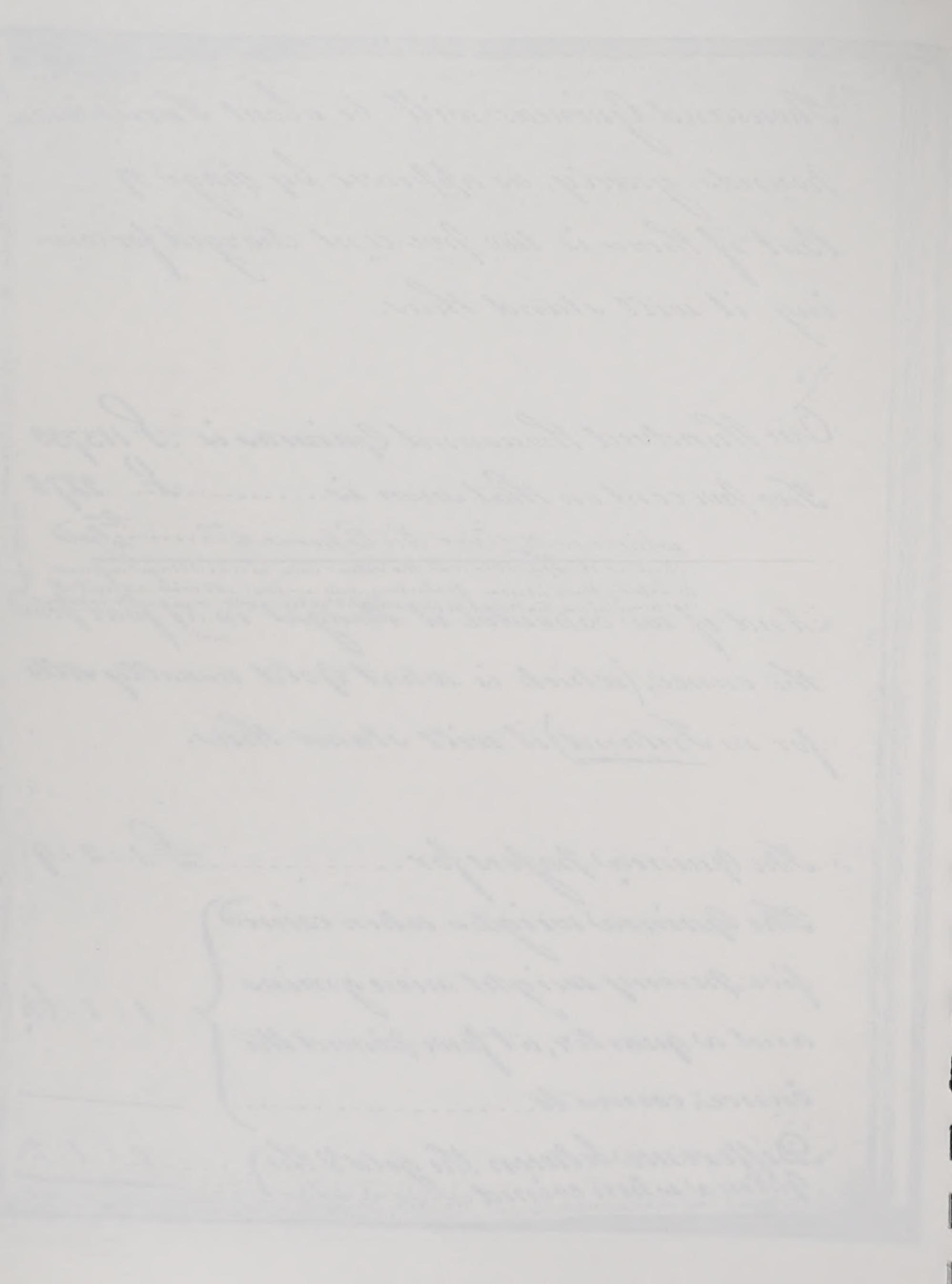
But as it is ^{not} probable that the silver coin can be alloyed sufficient
to destroy the ^{the} Pence of coining and as the Gold will admit of
no alloy, that will bring ^{the} sum to £ 2275

And if we consider it ^{the} Weight in ^{the} four pounds
the ounce, (which is what Gold usually sells
for in Ireland) it will stand thus.

The Guinea passes for £ 1:2:9.

The Guinea weighs when coined
five penny weight nine grains
and a quarter, at four pounds the
ounce, comes to £ 1:1:6 $\frac{1}{2}$

Difference between the gold & the
Guinea when coined £ 0:1:2 $\frac{1}{2}$



Difference between the gold, and, one Hundred
 Thousand Guineas when coined £ 60,41:13:4
 Expences of coining about 2000:0:0
 In this case the gain yearly will be £ 041:13:4

The price of Gold in London was,

July 11th 1783

Gold in coin	£ 4:1:9
ditto in Bars	3:18:0

£ 62

Continued so till.

Sept 12th 1783.

Gold in coin	£ 4:1:0
ditto in Bars	3:18:0

£ 62

Continued so till.

September 16th 1783

Gold in Coin	£ 3:19:6
ditto in Bars	3:18:0

£ 12

Dec^r 9th 1783 the same

An Estimate of the Expence of Labour for
one year, to Coin one Hundred Thousand
Guineas.

Wast and ditto at half a grain	for each Guinea at two pence per	£ 57 16:13:4
grain or £ 4: per Ounce		
Die sinking for the money for		300:0:0
one year-----		
Assay masters		200:0:0
Two workmen at £ 100 each		200:0:0
3 men 3 months	Porter	30:0:0
Casual Expences		£ 43:6:8
		£ 1200:0:0

Mastor of the mints Salary

Rent

total expences

An Estimate of the Tools necessary for the
Coinage.

No. 1	a furnace for Assaying, about	£ 30:0:0
No. 2	a furnace for melting, --- about	30:0:0
No. 3	two Tongs for pouring the metal in	2:0:0
No. 4	an Oven for Heating the metal	20:0:0
No. 5	a Horse-mill for flaking the metal	100:0:0
No. 6	a pair of steel Rollers for Hollering	4:0:0
No. 7	two Cutting Jaws, at 10. each	20:0:0
No. 8	a Fly or large pair of Jaws at 10 each	10:0:0
No. 9	two pair of Scales, at 2/10 each	5:0:0
No. 10	a Machine for milling	10:0:0
Other trifling Expenses, Vices, files, Hammer &c		39:0:0

£ 300:-

A. An Estimate of the time necessary for the coining
of two Thousand Guineas.

First Operation melting takes	6 Hours	
Second ditto flattening with metal hammers	8 ⁰	
Third ditto	8 ⁰ with steel hammers	2 8 ⁰
Fourth ditto Cutting to the size	2 days	
Fifth ditto making the impressions	1 8 ⁰ . 6 8 ⁰	
Sixth ditto Adjusting to the weight	2 8 ⁰	
Seventh ditto milling the edges	1 8 ⁰	
	<hr/> <u>7 days 6 hours</u>	

B. Three men in six days, will be able to coin two
Thousand Guineas.

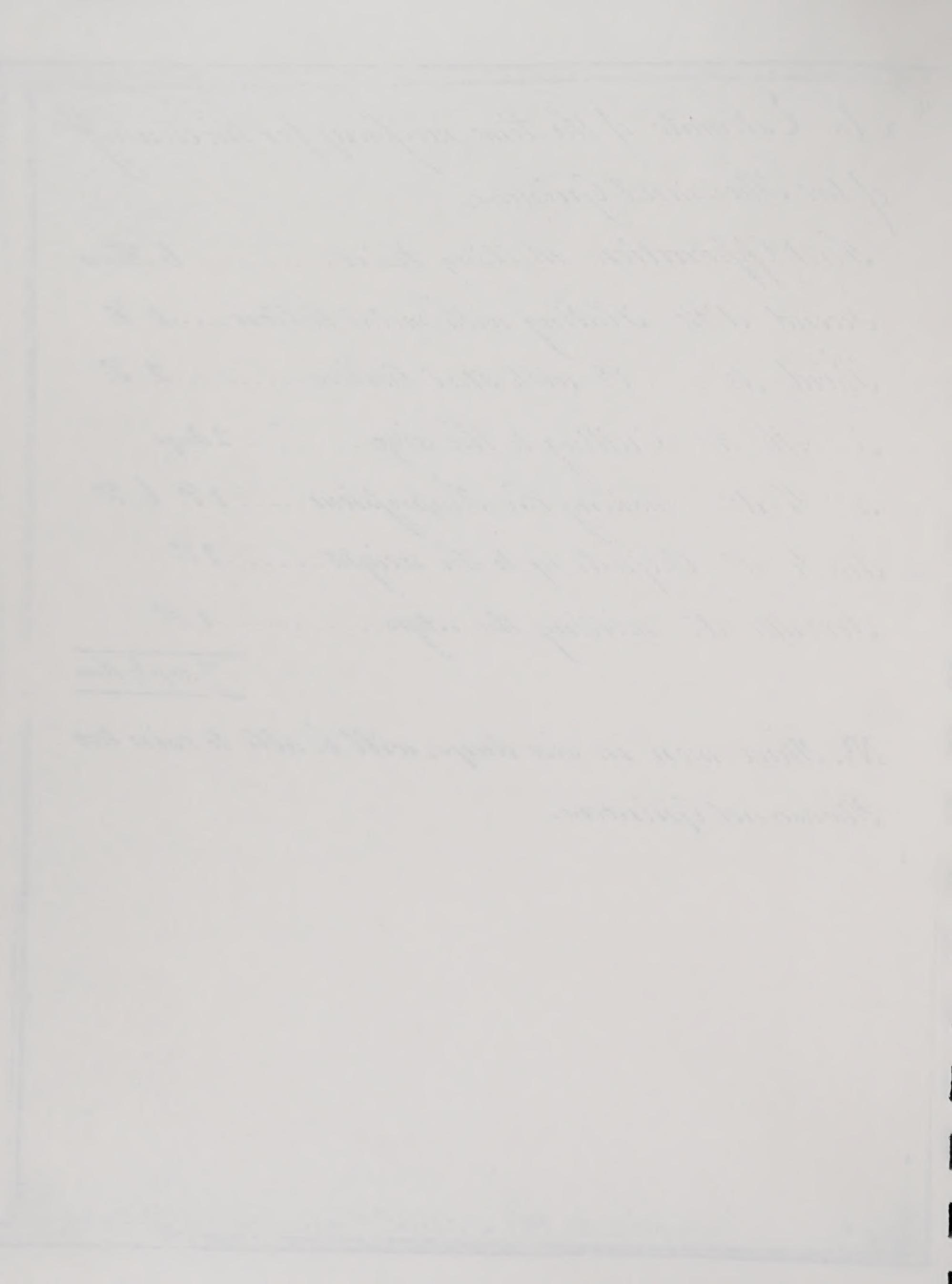


Table of Silver Weight.

43
48

32 grains of wheat.....	24 Artificial grain
24 Grains	1 pennyweight
20 dwt	1 Ounce
12 OZ.	1 Pound

The standard of the silver coined in the Tower of London is Eleven Ounces 2 Pennyweight of High fine silver, and 18. pennyweight of copper, and the arms that all ^{wrought} silver both here and in London are touched at.

The standard silver is usually called Sterling silver, on account of the first coin made in England having been struck with a Star on it. Sterling silver in Dublin is usually from five and six pence, to five and Ten pence per Ounce.

Price of Silver in London 22nd July 1783. 1000

piece of eight	pillow large	5: 8	45
	ditto small	5: 8	
	Mexico large	5: 7 1/2	per Oz.
	ditto small	5: 6 1/2	
Silver in Bars		5: 9 1/2	

12th of Sept^r fell on penny in the Cancer

16th of Sept^r fell on penny more,

23rd of Sept^r fell one penny.

24th of Oct^r fell on half pennies.

9th of Dec^r thus

piece of eight	pillow large	5: 4	
	ditto small	5: 4	
	Mexico large	5: 4	per Oz.
	ditto small	5: 3	
Silver in Bars		5: 3 1/2	

Note to Value of these are ascertained according to the

Weight of Silver when coined.

	^{dwz} Gr		
Sixpence weighs.....	1: 22	at 5/6 per oz	6 1/4 at 5/10 - 6 1/2
Shilling	3: 20	1: 0 1/2 1: 1 1/2
Half-Crown.....	9: 14	2: 7 1/2 - 2: 9 1/2
Crown.....	19: 4	5: 3 1/2 - 5: 7

the Crown and Half-Crown being worth more than the price for causing them to be melted by the Goldsmiths, and Jewellers.

The sixpences and shillings are the weight of those coined by Queen Ann, in 1711, George the first 1723, George the second, 1743 and 1745. The Crowns and half-Crowns by Charles the second in 1673.

The process of the silver Coin is the same as that of the Gold, only instead of putting it in a qua-
rtier like the Gold it must be put into Alum

Allum-water and Boiled, whenever it is Heated
the aquafortis would corrode the Silver.

The coining of Sixpences, Shillings, Crowns &
half Crowns; takes the same time as Guineas
and of Course One Hundred Thousand Sixpences

is as Expensive to Coin them, as One Hundred

Thousand Guineas, the Difference is only in
the waste the Gold being ^{less} greater than the silver,

The waste on two Thousand Sixpences or Shillings
will be about four Ounces,

The waste on two Thousand Crowns or half
Crowns will be about five Ounces,

The waste on one Hundred Thousand Sixpences
or Shillings at a grain each valued at 3:10 per
is £ 60:15:1.

The waste on one Hundred Thousand Crowns
or half Crowns at one grain & a half each at
3:10 per Oz, is £ 91: 2:72.

Table of Copper Weight.

51

16 Drams 1 Ounce

16 Ounces 1 Pound

28 Pounds 1 Quarter of a Hundred

Weight of Copper coin.

A half penny weighs $5\frac{1}{4}$ drams.

A farthing weighs $2\frac{1}{8}$

Price of Copper. $1\frac{1}{2}$ per pound

One pound of Copper will make Forty Eight half pence or Ninety Six farthings.

The copper being brought in sheets from three to four feet square and double the thickness of half pence, are cut into stripes something broader than a halfpenny, they are heated and putt into a pickle made of salt and water to clean it. Further is brought to the steel hammers to give it a Glop and bring it to the exact thickness, then to the Casting pruse N^o 7. to cut them.

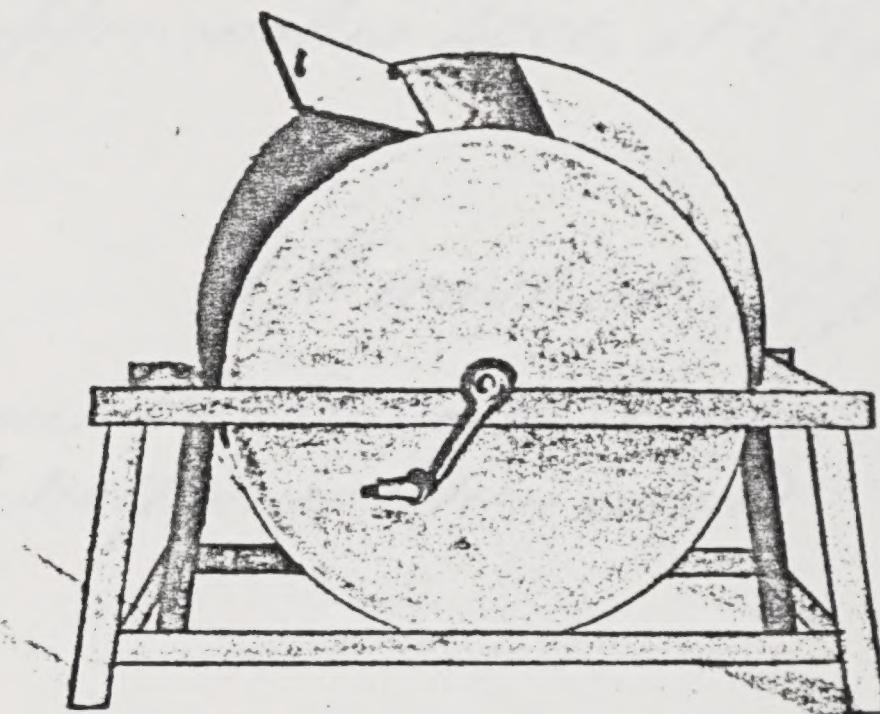
B Tom told that Copper cast the 3d from the County of Lancashire

52. for 9. per lb with some decay in it, but allowing it of this
tally it will not come to more than 10. per lb. The said Copper has
been Assayed by Competent Judges & they say it for exceeding the
Copper Imported

1000 lbs 1000 lbs

Copper 1000 lbs

them to the size, they are sealed again and putt into
pickle, they are then putt into this wheel with the
cutting of Leather to make them very clean,



the door is shut, and the wheel kept turning till
they become very bright and fit for they Dies.
then they are brought to the press 8:8 to
receive the Impression which finishes them, as
they are neither weighed, nor milled on the edges,
the cuttings are milled, and cast into Tugots
like the Gold, and so made use of.

Three men in six days can make four thousand
halfpence, or Farthings.

Four thousand halfpence is	£ 8: 6: 8
83 $\frac{1}{2}$ of copper makes 4000, at 1 $\frac{1}{2}$ p. lb. is. 4:17:5	
	<hr/> 3:9:8
3 lb was cast at 1 $\frac{1}{2}$ p. lb	3: 6
Difference between the Value of the Copper	<hr/> 3: 3: 9
and the halfpence when coined	

Formerly all coin were struck with a Machine of this kind, but the Fly 8:8 being found more correct in the stroke, this other machine was laid aside, but they have brought this machine to such perfection that I think it would be sufficiently correct for coining of Copper. The advantage this Machine has over the Fly 8:8, is, it requires but one man to work it, therefore half the Expence of Labour is saved by it, also

also the stroke is much quicker and one man
can do double with this machine, than the two men
can do with the Fly. I have over twenty Trips
been taken off with this machine, in a minute
while looking at my watch, which is more than
possible can be done with a fly, but the great Exhi-
bition, would be wrong to make a calculation on an
assumption, that the machine could continue to work at this rate
for any length of time — This machine costs about
Twenty Guineas —



